

REMARKS/ARGUMENTS

No claims are amended, canceled, or added by entry of this response. Accordingly, claims 1-27 will remain pending for examination.

Double Patenting Rejection

Claims 1-20 stand rejected under nonstatutory obviousness-type double patenting grounds based upon claims 1-19 of U.S. Patent No. 6,704,372. Applicants have filed a terminal disclaimer, thereby overcoming the double patenting rejection to the claims. Furthermore, Applicants don't necessarily agree with the Examiner's comment regarding any "inherent" recitation of the claim elements. However, the terminal disclaimer overcomes the double patenting rejection and obviates the need for any further discussion regarding the Examiner's comments.

Section 102 Rejection of the Claims

Embodiments of the present invention relate to a method and circuitry for implementing demodulator circuits. Specifically, one feature according to an embodiment of the present invention is a complex multiplier configured to multiply a multi-channel RF signal with a select frequency in order to obtain the separate RF channel. Accordingly, independent claim 21 recites:

21. A digital tuner for use in multi-channel demodulation, the digital tuner comprising:

at least one numeric control oscillator (NCO) configured to generate a select frequency, the select frequency being associated with a corresponding and separate RF channel;

at least one complex multiplier configured to receive a multi-channel digital RF signal and to multiply the multi-channel digital RF signal with the select frequency to obtain the corresponding and separate RF channel; and

at least one low-pass filter (LPF) configured to receive the digital RF signal and to pass the corresponding RF channel. (Emphasis added)

In the latest office action, the Examiner rejected claims 21 and 22 as anticipated under 35 U.S.C. 102(e) based upon U.S. Patent No. 6,263,195 to Niu et al. ("the Niu Patent"). These claim rejections are traversed as follows.

As a threshold matter, the Examiner is respectfully reminded that certain claims stand rejected as anticipated, and not merely obvious, in view of the Niu Patent:

[t]he distinction between rejections based on 35 U.S.C. 102 and those based on 35 U.S.C. 103 should be kept in mind. Under the former, the claim is anticipated by the reference. No question of obviousness is present. In other words, for anticipation under 35 U.S.C. 102, the reference must teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present. (Emphasis added; MPEP 706.02)

Here, the Niu Patent fails to teach, explicitly or impliedly, a complex multiplier configured to multiply a multi-channel RF signal with a select frequency in order to obtain a separate RF channel.

The Niu Patent is directed towards a tuner circuit in a digital communication system. In particular, the Niu Patent discloses a tuner configured to shift an single data signal to a lower frequency by multiplying the signal by a sinusoidal waveform.

The filter block in FIG. 3 receives only one stream of samples from the output signals 13₁-13_n of demultiplexer 13 as an input data signal... The input data signal is applied to a frequency converter 36 where it is multiplied by a complex sinusoidal waveform to shift it to a lower carrier frequency. (Emphasis added; Col. 5, lines 4-10)

Therefore, the Niu Patent discloses multiplying a single data signal with a selected frequency. Moreover, this signal is merely shifted in order to obtain a lower carrier frequency. By contrast, embodiments of the present invention disclose multiplying a multi-channel RF signal with a select frequency in order to obtain a corresponding and separate RF signal. The Niu Patent does not disclose this limitation since the tuner of the Niu Patent is only configured to shift an single data stream signal to a lower frequency. In other words, the Niu Patent *receives a single data stream signal and performs frequency shifting*, while the embodiment according to claim 21 *receives a multi-channel signal and outputs a corresponding and separate RF signal*. As such, the Niu Patent does not teach all the elements of independent claim 21.

Section 103 Rejection of the Claims

Claims 23-25 stand rejected as obvious under 35 U.S.C. 103(a) based upon U.S. Patent No. 5,299,192 to Guo ("the Guo Patent") in view of the Niu Patent. These claim rejections are traversed as follows.

One aspect of the present invention as substantively recited in independent claim 23 is a "down sample circuit that samples a multichannel digital RF signal." In order to establish a prima facie case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. (MPEP 2143). Here, both the Guo Patent and Niu Patent fail to teach or suggest this claim element.

The Guo Patent generally relates to a digital frequency demultiplexing device. However, as explicitly acknowledged by the Examiner, the Guo Patent fails to disclose a down sample circuit that samples a multichannel digital RF signal (See Office Action Mailed March 22, 2007, pg. 10). In order to supply this absent teaching, the Examiner has combined the Guo Patent with the Niu Patent. However, the Niu Patent does not remedy the teaching lacking from the Guo Patent.

The Niu Patent discloses a down sampler which *down samples a single data stream signal* by 2 (See Col. 10, lines 12-14). As such, the Niu Patent fails to teach a down-sample circuit which *down samples a multi-channel digital RF signal*. Therefore, the combination of the Guo Patent with the Niu Patent fails to teach or suggest all the elements of independent claim 23.

Claim 26 stands rejected as obvious based upon the Guo Patent in combination with the Niu Patent and in further view of U.S. Patent No. 7,050,778 to Olson ("the Olson Patent"). However, the Olson Patent does not remedy the teaching lacking from the Guo Patent and the Niu Patent since the Olson Patent fails to even mention a down-sampler circuit or sampling a signal. As such, the combination of these references also fails to teach all the elements of the pending claims.

Based upon the failure of the cited art to teach or even suggest each and every element of the independent claims, it is respectfully asserted that these claims cannot be considered anticipated or obvious by the art relied upon by the Examiner. Continued maintenance of the

anticipation and obviousness claim rejection is improper, and these claim rejections should be withdrawn.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

/Romiwa C. Akpala, Reg. No. 59,775/

Romiwa C. Akpala
Reg. No. 59,775

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 650-326-2400
Fax: 415-576-0300
Attachments
DNS:KFC:RCA
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